

# 2012 IRC Fire Protection of Floors/Fire Areas

## **R302.4 Dwelling unit rated penetrations.**

Penetrations of wall or floor/ceiling assemblies required to be fire-resistance rated in accordance with [Section R302.2](#) or [R302.3](#) shall be protected in accordance with this section.

### **R302.4.1 Through penetrations.**

Through penetrations of fire-resistance-rated wall or floor assemblies shall comply with [Section R302.4.1.1](#) or [R302.4.1.2](#).

**Exception:** Where the penetrating items are steel, ferrous or copper pipes, tubes or conduits, the annular space shall be protected as follows:

1. In concrete or masonry wall or floor assemblies, concrete, grout or mortar shall be permitted where installed to the full thickness of the wall or floor assembly or the thickness required to maintain the fire-resistance rating, provided:

1.1. The nominal diameter of the penetrating item is a maximum of 6 inches (152 mm); and

1.2. The area of the opening through the wall does not exceed 144 square inches (92 900 mm<sup>2</sup>).

2. The material used to fill the annular space shall prevent the passage of flame and hot gases sufficient to ignite cotton waste where subjected to ASTM E 119 or UL 263 time temperature fire conditions under a minimum positive pressure differential of 0.01 inch of water (3 Pa) at the location of the penetration for the time period equivalent to the fire-resistance rating of the construction penetrated.

#### **R302.4.1.1 Fire-resistance-rated assembly.**

Penetrations shall be installed as tested in the *approved* fire-resistance-rated assembly.

#### **R302.4.1.2 Penetration firestop system.**

Penetrations shall be protected by an *approved* penetration firestop system installed as tested in accordance with ASTM E 814 or UL 1479, with a minimum positive pressure differential of 0.01 inch of water (3 Pa) and shall have an F rating of not less than the required fire-resistance rating of the wall or floor/ceiling assembly penetrated.

**R302.5 Dwelling/garage opening/penetration protection.**

Openings and penetrations through the walls or ceilings separating the *dwelling* from the garage shall be in accordance with [Sections R302.5.1](#) through [R302.5.3](#).

**R302.5.1 Opening protection.**

Openings from a private garage directly into a room used for sleeping purposes shall not be permitted. Other openings between the garage and residence shall be equipped with solid wood doors not less than  $1\frac{3}{8}$  inches (35 mm) in thickness, solid or honeycomb-core steel doors not less than  $1\frac{3}{8}$  inches (35 mm) thick, or 20-minute fire-rated doors, equipped with a self-closing device.

**R302.5.2 Duct penetration.**

Ducts in the garage and ducts penetrating the walls or ceilings separating the *dwelling* from the garage shall be constructed of a minimum No. 26 gage (0.48 mm) sheet steel or other *approved* material and shall have no openings into the garage.

**R501.3 Fire protection of floors.**

Floor assemblies, not required elsewhere in this code to be fire-resistance rated, shall be provided with a  $\frac{1}{2}$ -inch (12.7 mm) gypsum wallboard membrane,  $\frac{5}{8}$ -inch (16 mm) wood structural panel membrane, or equivalent on the underside of the floor framing member.

**Exceptions:**

1. Floor assemblies located directly over a space protected by an automatic sprinkler system in accordance with Section P2904, NFPA13D, or other approved equivalent sprinkler system.
2. Floor assemblies located directly over a crawl space not intended for storage or fuel-fired appliances.
3. Portions of floor assemblies can be unprotected when complying with the following:
  - 3.1. The aggregate area of the unprotected portions shall not exceed 80 square feet per story
  - 3.2. Fire blocking in accordance with [Section R302.11.1](#) shall be installed along the perimeter of the unprotected portion to separate the unprotected portion from the remainder of the floor assembly.
4. Wood floor assemblies using dimension lumber or structural composite lumber equal to or greater than 2-inch by 10-inch (50.8 mm by 254 mm) nominal dimension, or other approved floor assemblies demonstrating equivalent fire performance.